Vol. 20. Parts 9–10. Pp. 97–120, 2 plates, 13 figs. 15th Oct., 1951

THE PROCEEDINGS

OF THE

ROYAL ENTOMOLOGICAL SOCIETY OF LONDON

Series B

TAXONOMY

(being the continuation of Stylops)

World List abbreviation: *Proc. R. ent. Soc. Lond.* (B)

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LONDON

PUBLISHED BY THE SOCIETY AND

SOLD AT ITS ROOMS, 41, QUEEN'S GATE, S.W.7

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NOTES ON SOME NEW OR RARE RHOPALOCERA FROM EASTERN AFRICA.

By T. H. E. Jackson, F.R.E.S.

Part II.

Revisional Notes and Descriptions of Some New East African Rhopalocera.

Pieridae.

Colotis pallene Hopffer, 1855.

Colotis rogersi Dixey, 1915.

An examination of the external facies of these two "species" together with a study of the distribution suggests that they are subspecies of one widespread species. Mr. G. Talbot, who wrote the Revision of this genus (Talbot, 1939), has examined them with me, and has authorized me to state that he agrees with the above. It was at first thought that *Colotis ephyia* Klug, 1829, also belonged here, but a study of the genitalia shows that whereas *pallene* and *rogersi* are very similar, *ephyia* differs considerably, and should, therefore, perhaps remain as a separate species.

Genitalia.—No significant differences between *pallene* and *rogersi*; *ephyia* has a smaller and more pointed valve, shorter uncus and more curved aedeagus.

Colotis pallene Hopffer has priority and the systematic list will be as under:

Colotis pallene pallene Hopffer, 1855. S.E. Africa to Nyasaland, Tanganyika Territory and Uganda.
Colotis pallene halyattes Butler, 1876. Natal to Delagoa Bay.
Colotis pallene lais Butler, 1876. Transvaal to Cape and S.W. Africa.
Colotis pallene rogersi Dixey, 1915. Kenya to S.E. Sudan.

Satyridae.

Monotrichitis sophrosyne Plötz, 1880.

Monotrichitis sophrosyne Plötz subsp. **brunnea** subsp. n.

♂. Differs from *S. sophrosyne* Plötz in that the jet black patch of modified scales on the upperside of the fw. is vestigial and is only represented by a darker shaded area.

♀. Somewhat darker above and below than in typical *sophrosyne* and lacks the obscure pale sub-apical area of the fw. above.

Habitat.—W. Uganda: W. Ankole, Kalinzu Forest.

Genitalia.—These were compared also with a species from W. Africa rather similar above to *brunnea*; i.e. *istaris istaris* Plötz. "The general appearance of *brunnea* is nearer *sophrosyne* than *istaris*; but the complete armature is markedly smaller than either. The tip of the uncus appears midway between the sharp-pointed *sophrosyne* and the ball-pointed *istaris*" (Bennett).

♂ Holotype: Kalinzu Forest, W. Ankole, Oct., 1937 (*T. H. E. Jackson*).

♀ Allotype: Kalinzu, Jan., 1935 (*T. H. E. Jackson*), and 1 ♂, 1♀ paratypes, all in B.M. Paratypes also (4 males, 1 female) collection Jackson, Kitale, Kenya.

NYMPHALIDAE.

Charaxes boueti Feisthamel, 1890.

There has been some doubt in the past as to the correct systematic position of *lasti* Grose-Smith (*vide* Talbot, 1927). Both *lasti* Grose-Smith and *macclounii* Butler were known to occur together in the Usambara area of Tanganyika Territory, and there are specimens to prove this in the British Museum (Nat. Hist.) Further confirmation has been supplied by recent collections from Amani, in the Usambara Mts., in which 5 males and 4 females of *macclounii* were taken among hundreds of *lasti*. A comparison of these two forms reveals the following differences other than those of colour and pattern, which are well known: the wing-shape is different, *macclounii* being a more slender insect with fw. apex more acute. Below, the two black discal marks in the centre of 1*b* of the fw. are placed close together or joined to form a ring in *macclounii*, whilst in *lasti* they are normally much further apart. It was considered at one time that *macclounii* was the dry-weather form of *lasti*, but an examination of the series from Nyasa and Rhodesia in B.M. reveals both wet and dry forms among the former. The latter, therefore, cannot be the wet season form of *macclounii*. It is significant, also, that among the material examined there are no intermediates between these two forms from the Usambaras, where they fly together, or elsewhere. In view of the foregoing, it would appear that *lasti* should be considered a separate species.

Further examination of the series in the British Museum shows that *macclounii* is undoubtedly the eastern subspecies of *boueti* Feisthamel.

The remaining forms to be considered in this group are *alticola* Grunberg and *rectans* Rothschild and Jordan. Both were described originally as forms of *boueti* Feisthamel (*boueti* var. *alticola* and *boueti* subsp. *rectans*). Later Talbot (1929) considered *alticola* to be a distinct species, and there is some evidence in support of this theory and for placing it with *rectans* in a different group. Both occur in high country associated with bamboo, on which the former is known to breed (observation by Dr. V. G. L. van Someren and the author, unpublished), but until more is known of the breeding habits of *boueti* and *macclounii* it is perhaps best to treat them all as members of one group. The general facies are very similar, and it should be noted that the white hw. bar of *alticola* is merely a mimetic character in association with *Ch. ansorgei ruandana* Talbot, 1932.

Genitalia:

Charaxes boueti boueti.
Charaxes boueti alticola.
Charaxes boueti macclounii, Rhodesia.
Charaxes boueti macclounii, Tanganyika Territory.
Charaxes boueti rectans.
Charaxes lasti.

Approximately the same degree of variation exists between all the above forms with the exception of the two *macclounii*, which are virtually identical, and of *lasti*, which appears to differ more than the others.

Systematic List.

Charaxes lasti Grose-Smith, 1889.

= *Charaxes boueti centralis* Neustetter, 1929.

Kenya Coast to E. Tang. Terr. (Usambara-Uluguru Mts.).

The name *centralis* was applied to a male supposed to have come from French Congo. The type is in the British Museum and has again been compared with the type of *lasti* Grose-Smith. They appear to be identical. No further specimens of *centralis* or *lasti* have apparently been recorded from French Congo or from anywhere west of the eastern littoral. The locality on this specimen is, therefore, extremely doubtful; *vide* also Talbot, 1929.

A. *Charaxes boueti boueti* Feisthamel, 1850. West Africa, Gambia, Sierra Leone, Nigeria.

B. *Charaxes boueti alticola* Grunberg, 1911. Belgian Congo, N. Ruanda (Karissimbi Volcano); Uganda, Kigezi District, Kanaba Gap.

C. *Charaxes boueti rectans* Rothschild and Jordan, 1903. Abyssinia, Schoa; S. Sudan, Imatong Mts.; Uganda, N. Karamoya, Labwor Hills.

D. *Charaxes boueti macclounii* Butler, 1895 (= *Charaxes lasti* var. *flavescens* Lanz, 1896). Tang. Terr., Usambara-Uluguru Mts.; Nyasaland, Zomba, Mlange, etc.; Rhodesia, Vumba Mts., Fort Jamieson, etc.

Charaxes smaragdalis Butler, 1865.

♀ f. *caerulea* Hale Carpenter and Jackson, 1950.

This remarkable form occurs, apparently as the only female form of *smaragdalis*, in the extreme west of Uganda (Ankole, Kalinzu Forest and Bwamba). The male does not differ from *orientalis* Joicey and Talbot, and the sexes are alike. In all other races of *smaragdalis* the female has a white sub-apical band. The Kalinzu Forest and Bwamba have been extensively collected and some 6–7 females taken, all of the blue male-like form. In view of this and of the distribution, the Ankole, Bwamba insect should be regarded as a geographical race and not merely as a ♀ f., as stated by Hale Carpenter and Jackson, 1950.

♂ Neallotype: Kalinzu Forest, W. Ankole, Feb., 1938 (*T. H. E. Jackson*). Paratypes in collections Jackson, van Someren, Kenya Colony.

Genitalia:

Charaxes smaragdalis caerulea Hale Carpenter and Jackson.
Charaxes smaragdalis smaragdalis.
Charaxes smaragdalis butleri.
Charaxes smaragdalis orientalis.

All four seem identical.

Systematic List.

A. *Charaxes smaragdalis smaragdalis* Butler, 1865 (= *Charaxes princeps* Butler, 1896). West Africa to East Congo.

B. *Charaxes smaragdalis butleri* Rothschild and Jordan, 1900. Sierra Leone to Gold Coast.

C. *Charaxes smaragdalis orientalis* Joicey and Talbot, 1917. Uganda (except extreme west); Kenya, West Rift, Kericho, Kakamega, etc.; Tang. Terr., Geita.

D. *Charaxes smaragdalis caerulea* Hale Carpenter and Jackson, 1950. W. Uganda, W. Ankole, Kalinzu Forest and Bwamba.

Pseudacraea dolomena Hewitson, 1865.

In the course of investigations into the taxonomy of *dolomena* Hewitson, it was discovered that the Eastern Congo subsp. was without a name, as were also two distinct female forms. These are described below:

Pseudacraea dolomena **congoensis** subsp. n.

Differs from the nominotypical race by the hw. band above being narrow and sharply defined.

♂. *Ups. fw.*: As in the typical race; *hw.*: the band is similar to that of *dolabella* Hall, but coloured lemon-yellow from the inner margin to vein 4, then bright reddish brown or is entirely bright reddish brown. In *dolabella* it is entirely white or white with some orange-yellow in 5 and 6. This band is sharply defined both anteriorly and posteriorly and is placed exactly as in *dolabella*.

♀ as in the typical race except that the hw. band is narrow and sharply defined. In one ♀ from W. Kivu in the British Museum the band reaches the base as in the typical ♀.

Among ♀ *dolomena dolomena* the hw. band may be defined posteriorly, leaving a dark border, but in this case the border is narrower than in *congoensis* and the band always reaches the base of the wing.

Uns.: As in the typical race, but dark marginal borders broader.

Habitat.—E. Congo (1 ♀ in B.M. from Gaboon).

♂ Holotype: Middle Lowa Valley, Mt. Walikali, 3000–4000 ft., forest, 24th Feb. Wet season (*T. A. Barnes*).

♀ Allotype. Escarpment, W. Semiliki Valley, 20 miles S.W. of Boga, 3500–4000 ft., July, 1924 (*T. A. Barnes*). Both in B.M. Also in B.M. 1 ♀, W. Kivu (*T. A. Barnes*); 1 ♀, Gaboon *ex* Hewitson Collection.

A series of both sexes from Ituri Forest, Belgian Congo, in Collection Jackson, Kenya Colony.

Pseudacraea dolomena dolomena Hewitson. Female **f. pseudepiprotea** forma n.

Agrees with female of *dolomena congoensis* nov. (which form occurs also among typical *dolomena*, *vide* above) except that the sub-apical band in fw. is pure white and the inner-marginal patch fw. and median band hw. are pale brownish-yellow. It is a good mimic of ♀ *Bematistes epiprotea* Butler, with which it flies.

♀ Holotype: Warri, Nigeria (Joicey Bequest), in B.M. One other labelled Cameroons (Crowley Bequest), also in B.M., and 3 at Tring (B.M. collection Rothschild), all Warri, Nigeria.

Pseudacraea dolomena usagarae Staudinger. Female **f. unguru** forma n.

This very interesting and distinct form flies with subsp. *usagarae* in eastern Tang. Terr. It is, so far, only known in the female. Differs from ♀ f. *dolichiste* and *usagarae* as follows:

Ups. fw.: Sub-apical band and inner-marginal patch ochreous. The former is well developed in the type reaching vein 2 and with a small obscure spot also in 1*b*. It reaches to within 1 mm. of the hind-margin in cellules 2 and 3. The dark apical area beyond this band is dusted with ochreous scales among which the black interneural streaks stand out boldly. The inner-marginal patch is larger than in the other two ♀ forms, reaching to the middle of cellule 2 and to within 3 mm. of the hind-margin along 1*b*.

Ups. hw.: Ochreous with a narrow, sharply defined sepia marginal border 2 mm. wide from the anal-angle to vein 4 and 3 mm. thereafter. Black interneural streaks as in the other forms, the ochreous colour between them being darker than in the discal area.

Uns.: As in *dolichiste*, except that the pale areas are straw-coloured and that of the hw. reaches to within 1 mm. of the margin.

This form bears a general resemblance to *Bematistes quadricolor morogoro* Hale Carpenter and Jackson, with which it flies. So far only two specimens are known, both from Turiani in the Unguru (Nguru) Mts.

Holotype ♂, E.A., Tang. Terr., Morogoro Dist., Turiani, 9.vi.1933 (*B. D. Burrt*); in University Museum, Oxford. One other, Turiani, Unguru Mts., Morogoro Dist., Tang. Terr., Oct., 1948 (*T. H. E. Jackson*), in collection Jackson, Kenya Colony.

Systematic List.

Most of the named forms of *Pseudacraea dolomena* Hewitson were described either as separate species, varieties, forms or aberrations. It is now possible, however, to form a better idea of their relationships and geographical distribution and a revision of the nomenclature is given below :

a. *Pseudacraea dolomena dolomena* Hewitson, 1865.

West Africa ; Cameroons ; Calabar ; Nigeria ; W. Congo ; Katanga.

(i) Male and Female form *albolineata* Richelmann, 1913.

Described as *Ps. albolineata*, but obviously a form of *dolomena* Hewitson. There are no examples of this either at the B.M. or at Tring, but from the description it must be very near *rubrobasalis* Aurivillius, differing only in the greater amount of white in the interneural folds in the marginal areas.

(ii) Male and Female form *rubrobasalis* Aurivillius, 1903.

Katanga.

This is near *albostriata* Lathy, but the white interneural streaks are much more strongly developed and are present also in the dark marginal band of the hw.

A similar form flies with typical *dolomena* in Nigeria (in Tring from Warri, Nigeria), and another, from Kassai (Tring), has in the male a sub-apical bar on the fw. as in f. *dolomena* and the red area of the hw. extended almost to the margin as in *rubrobasalis*. It is therefore intermediate between the two.

(iii) Female form *pseudepiprotea* f. n.

Warri, Nigeria ; Cameroons.

(iv) f. *albovittata* Schultze, 1920.

This form, from Sierra Leone, would appear from the description to be near *dolabella* Hall. The author says that it differs from *dolomena dolomena* by the presence of a white band on the hw. There are no specimens of this in the British Museum.

B. *Pseudacraea dolomena congoensis* subsp, n.
Eastern Congo.

C. *Pseudacraea dolomena albostriata* Lathy, 1906.
(i) Male and female form *albostriata* Lathy, 1906.
(ii) Male and female form *dolabella* Hall, 1919.
Uganda, except West Elgon area.

D. *Pseudacraea dolomena elgonensis* subsp. n.
Uganda, West Elgon.

E. *Pseudacraea dolomena usagarae* Staudinger, 1890 (= ♂ *Pseudacraea dolomena pharsa* Fruhstorfer, 1903).
(i) ♀ f. *usagarae* Staudinger, 1890.
(ii) ♀ f. *dolichiste* Hall, 1919.
(iii) ♀ f. *unguru* f. n.
Tang. Terr., Usambara to Uluguru Mts.

The name *usagarae* Staudinger has priority although described from a female; the name *pharsa* Fruhstorfer, which is the male of this subsp., must sink. The commonest ♀ f. in this subsp. is *dolichiste* Hall.

Neptis incongrua Butler, 1896.

Neptis incongrua Butler subsp. **kikuyuensis** subsp. n.

This subspecies is very distinct and is distinguished by the much narrower white bands, particularly on the fw.

♂ and ♀. *Ups. fw.*: Spots much reduced, but with an additional spot in area 4, this spot being smaller than either that in 3 or 5. This spot is present in all specimens before me (4 males, 3 females), but appears also occasionally in the nominotypical race (2 out of 34 in B.M. collection). The spots in areas 2 and 3 more widely separated than in *incongrua incongrua*. The short white costal streak is absent.

♂ and ♀. *Ups. hw.*: The white discal band is usually but not always narrower than in the typical race.

The underside does not differ materially from *incongrua incongrua* Butler.

Genitalia.—The genitalia were compared with those from a specimen from Tang. Terr., which agrees with typical *incongrua* from Nyasaland and with another from Uganda. "I cannot see any difference at all between *kikuyuensis* and the Tang. Terr. specimen. They differ from the Uganda form in the mounting of the long, single spine at the apex of the valve."

Habitat.—KENYA, E. Rift., high country above Nairobi to Aberdare Mts.

♂ Holotype: B.E.A., Aberdare Mts. 7000–8000 ft., Feb., 1911 (*S. A. Neave*).

♀ Allotype: Katamayu, March, 1949 (*van Someren*) (specimen presented by Dr. V. G. L. van Someren of Nairobi).

Both in B.M. Also in B.M. 2 males (*S. A. Neave*). Same data as for holotype and 1 ♀. Escarpment 6500–9000 ft., 1900 (*Doherty*). Also a series from same area in collections van Someren and Barton-Eckett, Nairobi, Kenya.

ACRAEIDAE.

Acraea rangatana Eltringham, 1912.

Acraea rangatana Eltringham subsp. **ecketti** subsp. n.

Chiefly distinguished by the orange-brown ground-colour of both wings. The sexes are similar, although an occasional pale yellow female occurs, resembling one form of female *rangatana rangatana*, whereas the typical race is polymorphic.

♂ and ♀. *Ups.*: The ground-colour in both wings is orange-brown as against yellow-brown in the typical race.

Ups. fw.: The brown discal area is more extended basally and distally than in typical *rangatana*; it reaches to within 1·5 mm. of the margin at vein 1*b* as against 3 mm. in the typical race in the male. The marginal spots are much larger and are orange-brown. The sub-apical band is orange-brown; in the type form it is pale yellow.

Ups. hw.: Orange-brown discal area larger and marginal spots very much larger.

Uns. fw.: Differs as above.

Uns. hw.: The red sub-basal band is much darker, narrower, 1·5 mm. in *ecketti* to 2 mm. in the type form, and is edged with thick black lines.

I have much pleasure in dedicating this race to Mr. B. Barton-Eckett of Nairobi, who first drew attention to it.

This subspecies is an example of the efficacy of the Great Rift Valley as a barrier. The typical race occurs only east of the Rift and *ecketti* only west of it.

Genitalia, spp. *rangatana* and *ecketti*: "Very similar; *ecketti* has a slightly less pointed valve."

Habitat.—KENYA: West Rift, Molo, Lumbwa, Eldama Ravine, Timbaroa, etc.

♂ Holotype: Kenya Colony, Molo, 6.iii.1923 (*G. W. Jeffrey*).

♀ Allotype: Timbaroa, Kenya, March, 1949 (*T. H. E. Jackson*).

Both in B.M. Also in B.M. from Eldama Ravine, Lumbwa, Molo, Timbaroa and Lake Nairasha.

A note on one of these specimens by Professor G. D. Hale Carpenter states that there is a series of this form in the Oxford University Museum bearing a note by Eltringham to the effect that they are "intermediate between *rangatana* Eltringham and *ventura* Butler." The latter, however, is a very different insect and does not occur with *ecketti*, nor does this suggestion accord with the modern conception of speciation. The food-plants of *rangatana* Eltringham and *ventura* Butler are different, the former feeding on *Neasea* and *Rotala* and the latter on *Cassia zambesiana* and *Cassia* sp. (van Someren).

Also in Collections van Someren, Barton-Eckett, and Jackson, Kenya Colony.

Acraea excelsior Sharpe, 1891.

Acraea excelsior Sharpe subsp. **usambarae** subsp. n.

This subspecies is easily distinguished from *excelsior excelsior* Sharpe by the red-brown anterior half of the hw. band above. Sexes similar. Differs from *excelsior excelsior* Sharpe as follows:

♂ and ♀. *Ups. fw.*: Red-brown discal area without any marginal yellow scaling. Subapical yellowish band suffused with red-brown scales.

Ups. hw.: Median band creamy white from anal angle to vein 4, then reddish-brown to the costa, including a small spot in the upper angle of the cell. The posterior creamy half of the median band is reduced distally, so that the reddish-brown area in cellules 4 and 5 is more strongly angled than in the typical form. The discocellular black spot in *usambarae* is not extended to the costa as in most examples of the nominotypical race. In the female the red-brown marginal spots are much more strongly developed than in *excelsior excelsior*.

♂ and ♀. *Uns.*: As in *excelsior excelsior* except that the yellowish marginal spots of the hw. are much more prominent and the posterior half of the median band is reduced distally as above, the creamy white spot in the base of cellule 3 being even smaller than above.

Genitalia: ssp. *excelsior* and *usambarae*.—"Identical."

Habitat.—TANG. TERR.: Usambara Mts.

♂ Holotype, ♀ allotype: Usambara Mts., Tang. Terr., Sept., 1937 (*T. H. E. Jackson*). Two male paratypes in B.M. from Lindi, Tang. Terr., *ex* Coll. Suffert.

ADDENDUM.

NEW BUTTERFLIES FROM EAST AFRICA AND THE ITURI FOREST.

(*Proc. R. ent. Soc. Lond.* (B), **19**: 97–108, 1950.)

Charaxes etheocles subsp. *suk* Hale Carpenter and Jackson.

An examination of the material in the British Museum (Nat. Hist.) and at Tring has brought to light further material of this race. It appears to occur in the Rift Valley at Kibwezi in eastern Kenya Colony and also in Abyssinia. It is known that the food-plant is different from that of *picta* Rothschild and of *chanleri* Holland, and it should be considered as a race (possibly ecological) inhabiting the dry country of the Kenya and Uganda Rift Valley to Abyssinia.

It is much regretted that the type of *daria* Rothschild (Abyssinia) was not examined before publication of the above paper. It has been found to agree in all essential details with female form *achaemenesopsis* Hale Carpenter and Jackson, and the latter name must, therefore, sink to *daria* Rothschild.

ACKNOWLEDGMENTS.

My thanks are due to Mr. G. Talbot for much help in writing this paper; to Dr. V. G. L. van Someren for reading and correcting the paper and for many suggestions; the Keeper and Staff of the Entomological Department of the British Museum, and, particularly, to Mr. A. G. Gabriel, for providing me with every facility; to Mr. Bennett for the notes on genitalia, and to Dr. L. S. B. Leakey of Nairobi for his interesting note on the climate and conditions of the past.

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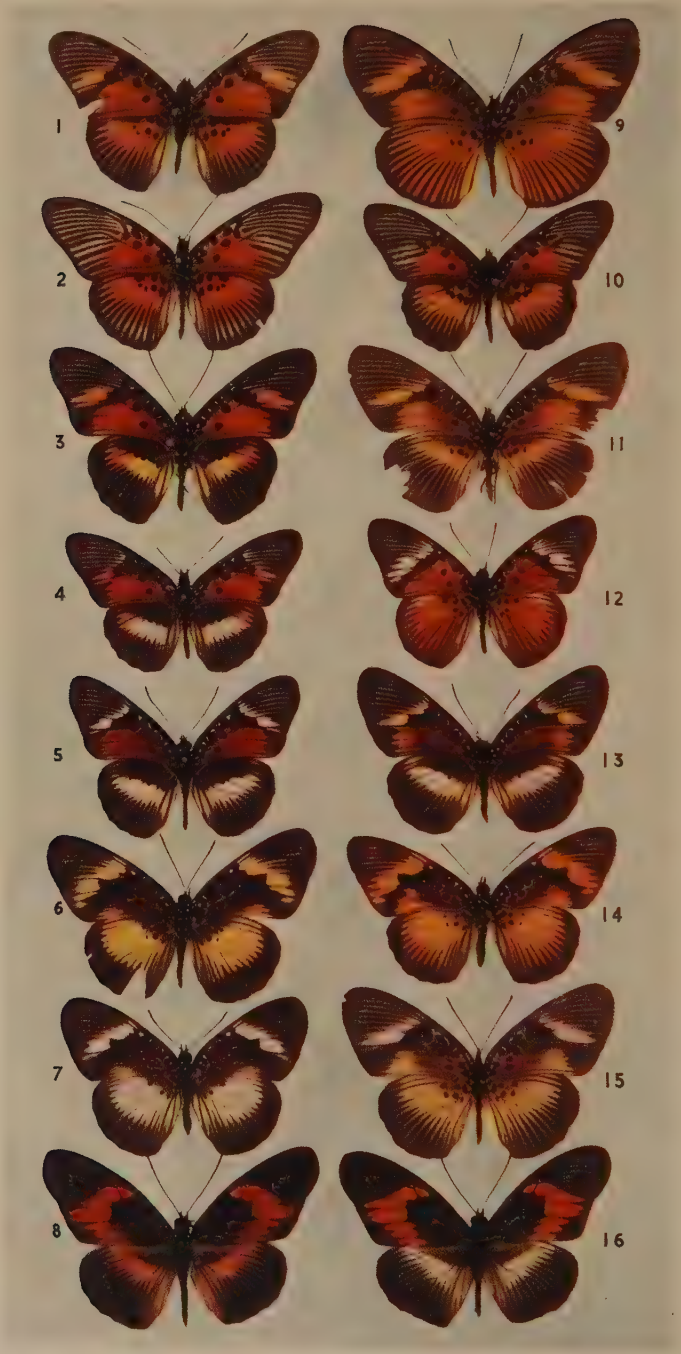

T. H. E. Jackson.

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Plate I.

1. *Pseudacraea dolomena* subsp. *dolomena* Hewitson, 1865, ♂.
2. *Pseudacraea dolomena* subsp. *dolomena* Hewitson, 1865.
   f. *rubrobasalis* Aurivillius, 1903, ♂.
3. *Pseudacraea dolomena* subsp. *congoensis* subsp. n., ♂.
4. *Pseudacraea dolomena* subsp. *albostriata* Lathy, 1906.
   f. *dolabella* Hall, 1919, ♂.
5. *Pseudacraea dolomena* subsp. *elgonensis* subsp. n., ♂.
6. *Pseudacraea dolomena* subsp. *usagarae*, Staudinger, 1890.
   ♀ f. *usagarae* Staudinger, 1890.
7. *Pseudacraea dolomena* subsp. *usagarae* Staudinger, 1890.
   ♀ f. *dolichiste* Hall, 1919.
8. *Pseudacraea gottbergi* subsp. *burgessi* subsp. n., ♂.
9. *Pseudacraea dolomena* subsp. *dolomena* Hewitson, 1865, ♀.
10. *Pseudacraea dolomena* subsp. *albostriata* Lathy, 1906, ♂.
11. *Pseudacraea dolomena* subsp. *congoensis* subsp. n., ♀.
12. *Pseudacraea dolomena* subsp. *usagarae* Staudinger, 1890, ♂.
    = *dolomena pharsa* Fruhstorffer, 1903.
13. *Pseudacraea dolomena* subsp. *elgonensis* subsp. n., ♀.
14. *Pseudacraea dolomena* subsp. *usagarae* Staudinger, 1890.
    ♀ f. *unguru* f. n.
15. *Pseudacraea dolomena* subsp. *dolomena* Hewitson, 1865.
    ♀ f. *pseudepiprotea* f. n.
16. *Pseudacraea gottbergi* subsp. *burgessi* nov.
    f. *albifascia* f. n., ♂.

COLOTIS FAUSTA SOMALICA HALE CARPENTER AND JACKSON, 1950. (LEP., PIERIDAE).

By G. D. Hale Carpenter, M.B.E., D.M.

A new subspecies of *Colotis fausta* Olivier was described as *somalica* by myself and T. H. E. Jackson in August, 1950. But Signor Luciano Storace, at Genoa, has informed me that he used *somalica* in 1949 for a race of *Colotis phisadia*. This publication was not to hand when the above account of *fausta* was written, nor had the *Zoological Record* for that year been published. The new form of *fausta* must receive another name, and *mijurteina* is hereby substituted for *somalica*.

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Book Notice.

Atlas of the Scale Insects of North America. Volume V. The Pseudococcidae (Part I). By G. F. Ferris. 4to. Stanford University Press (London : Geoffrey Cumberlege), 1951. Pp. vii + 278, 108 figs. Price 60*s*.

Follows the pattern of the previous volumes, except that the loose-leaf form has been abandoned. Volume V covers less than half of the North American Pseudococcidae, and the author expressly states that his aim is to clarify the existing names, and that new species have only been considered when they contribute to that end.

The genera treated in this volume are : *Amonostherium*, *Anisococcus* (new), *Chnaurococcus* (new), *Crisicoccus* (new), *Distichlicoccus* (new), *Dysmicoccus* (new), *Eurycoccus* (new), *Ferrisiana*, *Heliococcus*, *Nipaecoccus*, *Oracella* (new), *Peliococcus*, *Phenacoccus*, *Planococcus* (new), *Pseudococcus*, *Puto*, *Saccharicoccus* (new), *Spilococcus* (new), *Stemmatomerinx* (new), *Tridiscus* (new), and *Trionymus*. The species total 93.

There is a morphological introduction, and keys to genera and species. The figures follow the previous plan of showing the dorsal aspect on one side and the ventral on the other, with enlarged details at the sides.

URANOTAENIA MATTINGLYI SP. N., A NEW SPECIES OF MOSQUITO (DIPTERA, CULICIDAE) FROM HYDERABAD (DECCAN), INDIA.

By M. Qutubuddin.

(Malaria Institute of Pakistan, Karachi).

Communicated by Mr. P. F. Mattingly.

Uranotaenia mattinglyi sp. n.

This species belongs to Group B (*Pseudoficalbia*) of *Uranotaenia* (Edwards, 1932), which is distinguished from the other Group, A (*Uranotaenia*), by the absence of a line of flat scales in front of wing-root or bright blue scales on the head and pleura.

It is a medium-sized mosquito of fairly robust build with a strong purplish-blue sheen on the proboscis, legs and dark parts of thorax and abdomen. Among other characters the shape of the male style separates it from *U. annandalei* Barr. and *U. bimaculata* Leic. The dark pleura and absence of a thin line of narrow white scales along margin of mesonotum from wing-roots continued round front distinguish it from *U. nivipleura* Leic. It differs from *U. maculipleura* Leic. in the coloration of the pleura and the length of the palpi. It is marked off from *U. hebes* Barr. by the bare wing-roots, and the presence of more than one dark area on the pleura and more numerous distally expanded upright scales on the head. It is readily distinguished from *U. hussaini* Qutubuddin, by its smaller size and the coloration of the pleura; *U. hussaini* has uniformly pale pleura.

Since the new species has close affinities with *U. novobscura* Edw. and *U. recondita* Edw., the following comparative table is given to establish its identity more distinctly:

Comparative Table.

U. recondita. Edw.	*U. novobscura* Edw.	*U. mattinglyi* sp. n.
Head:		
Palps in both sexes rather variable, at least slightly more than 2 × the length of the clypeus.	Palps less than 2 × the length of the clypeus.	Palps less than 2 × the length of the clypeus in ♀, even shorter in the male.
Eye-margins pale but not conspicuously so.	Eye-margins with few or no pale scales except at sides.	Eye-margins distinctly whitish.
Female antennae exceeding proboscis by at least the last two segments.	..	Female antennae exceeding the proboscis by at most the last segment.

Comparative Table—continued.

U. recondita Edw.	*U. novobscura* Edw.	*U. mattinglyi* sp. n.
Thorax:		
Pronotal lobes dark-scaled.	..	Pronotal lobes with whitish scales.
Mesepimeron and sternopleura dark only on the upper parts.	Mesepimeron and sternopleura almost entirely dark. Meron and coxae paler, but not strikingly so.	Mesepimeron and sternopleura dark except at their lower edges, contrasting strongly with pale meron and coxae.
Thoracic bristles very strongly developed.	Thoracic bristles only moderately developed.	Thoracic bristles very strongly developed.
Abdomen:		
Pale venter contrasting strongly with dark dorsum.	Venter slightly paler than dorsum, but not strikingly so.	Pale venter contrasting strongly with dark dorsum.
**Male Terminalia*:		
Style tapering from near base, relatively long and slender (fig. 1, *a'*, *a''*).	Style shorter, stouter, of more or less uniform thickness for most of its length (fig. 1, *b*).	Style much as in *recondita*, but shorter and slightly stouter (fig. 1, *c*).

*The style of the new species is intermediate in shape between those of *novobscura* Edw. and *recondita* Edw. Barraud's figure of the latter is extremely misleading, and I have dissected the type and one other topotypic specimen for comparison. It would seem that this drawing was made from such an angle as to occasion considerable foreshortening. The differences between the styles of these species are very easily exaggerated if they are drawn from different angles. In my opinion comparison should always be made from fresh preparations which can easily be rotated. *P. F. Mattingly.*

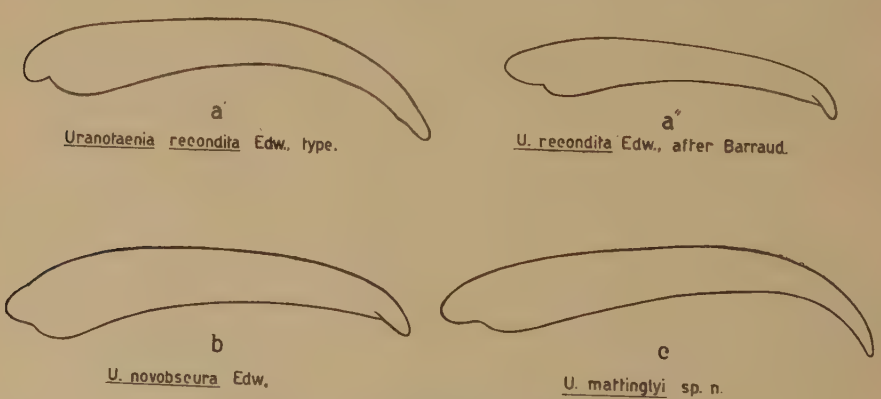

Fig. 1.—*Uranotaenia* spp. ♂ styles.

Female.—Head: Covered with dark brown flat scales with a border of pale creamy scales to the eye-margins that appear distinctly whitish. A large number of long brown upright scales on the vertex and nape; the ends of these scales are markedly expanded; torus pale brown; clypeus paler still. Palps very short, rather less than twice the length

of the clypeus. *Proboscis*: Dark brown with a strong purplish-blue sheen above, a little shorter than abdomen; approximate length 1·5–1·6 mm.; the labellum and the underside pale, the tip strongly swollen. Antennae slightly longer than the proboscis, exceeding the latter by at most the last segment. *Thorax*: Integument of mesonotum dark with purplish-blue sheen; scales narrow and brown, bristles very strongly developed; pronotal lobes with whitish scales; posterior pronotum bare and of pale brown colour. Space beneath the anterior spiracle darker; pleura with dark patches; mesepimeron and sternopleura dark except at their lower edges, contrasting strongly with pale meron and coxae. Sternopleura with whitish scales. There is no border of creamy broad scales to the mesonotum, nor any thin line of lanceolate pale scales on the margin. Wing-roots devoid of scales. No spiracular bristles present. A row of 7 to 10 fairly strong bristles occurs on the posterior border of the sternopleura, and a single strong bristle on the lower mesepimeron. *Wings*: Dark scaled, about 2·6–2·7 mm. *Legs*: Dark brown dorsally with a strong purplish blue sheen; paler beneath. Segment I of fore tarsi shorter than tibia and a little longer than segments II–V together. Segment I of hind tarsi slightly longer than tibia. *Abdomen*: Dorsum very dark with a purplish blue sheen, without markings; venter pale, covered with whitish scales, contrasting strongly with dark dorsum. Male resembles female, but antennae plumose; tip of the proboscis strongly swollen as in the female; palps shorter than those of the female.

Male terminalia: Style tapering from near base, much as in *U. recondita* Edw., but shorter and slightly stouter (fig. 1, *c*).

Egg, larva and pupa unknown.

Habitat: caught from crab-holes in an old pond in the Public Garden, Hyderabad (Deccan) City, India, in October, 1943.

I have great pleasure in dedicating this species to Mr. Mattingly, to whom I am highly indebted for confirming the identification of the species and for valuable criticism of the MS. of this paper, which has been amended to embrace his suggestions. He also kindly made drawings of the male styles of the new species and *U. recondita* type in the British Museum for me, and amended the comparative table with the inclusion of *U. novobscura*.

The holotype male and female are in the British Museum.

Acknowledgments.

I take this opportunity to thank Lt.-Col. M. Jafar, Director-General, Health Services, Pakistan, for permission to publish this paper. I am also indebted to Dr. M. M. Siddiq Husain, *ex* Deputy Director, Malaria Institute and Bureau of Laboratories, and Major M. Z. Y. Husain, Officer-in-Charge, Malaria Institute of Pakistan, for their appreciation and encouragement. My grateful thanks are due to Prof. P. A. Buxton, F.R.S., for the considerable amount of help received from him in getting the identification of the species confirmed by Mr. P. F. Mattingly.

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SOME NEW IRANIAN ACRIDIDAE (ORTHOPTERA).

By G. Popov, F.R.E.S.

(*Desert Locust Survey.*)

The following paper contains descriptions of four new genera, eight new species and one new subspecies from Iran. The majority came from an extensive collection submitted for examination by the Iranian Ministry of Agriculture; others have been collected by Messrs. E. P. Wiltshire, H. S. Darling and myself. All types have been deposited in the British Museum (Natural History).

My deep thanks are due to Dr. B. P. Uvarov, without whose guidance and encouragement this study would never have been accomplished.

Subfamily Acridinae.

Staurodertus scalaris **demavendi** subsp. n. (fig. 1).

Differs from the typical subspecies by the following characters:

Elytra and wings abbreviated, particularly in female; venation simplified. Wings clear, narrowly pointed; first lobe not separated.

	♂ type. (mm.).	♀ paratype. (mm.).		♂ type. (mm.).	♀ paratype. (mm.).
Total length .	20	26·5	Elytra width .	3·5	3
Antenna . .	9	8·5	Wing length .	10	7·5
Pronotum .	4	5	Wing width .	5	3·5
Elytra length .	12	10	Hind femur .	11·5	14

Elburz mountains 40 miles N.E. of Tehran, 2500 mts. 14.vii.1950, 4 ♂ (including type), 5 ♀ (*G. Popov*).

Subfamily Oedipodinae.

Phaeonotus gen. n.

Closely allied to *Sphingonotus*, but differing from it by very smooth, shiny integument; striking coloration; exceedingly long antennae; the shape of male cercus; and by broader elytra with straight hind margin.

Of medium size, slender.

Head strongly raised above pronotum. Front in profile very oblique, particularly in male. Frontal ridge concave, its margins gradually widening downwards and obliterated near the clypeus; its upper part in profile distinctly projecting between the antennae. Fastigium of vertex concave and sloping forward; foveolae very narrow, indistinct. Eyes large, more than 1½ times as long as wide. Antennae filiform, nearly twice as long as head and pronotum in both sexes.

Pronotum constricted in the middle, with 3 transverse sulci. Metazona slightly convex and about twice the length of the prozona; posterior angle about 90°, rounded. Median carina very low, sometimes absent in the prozona, occasionally distinguishable even between the furrows and interrupted by all three. Lateral lobes with rounded lower angles, higher than broad. Mesosternal lobes and their interspace transverse. Metasternal lobes widely separated.

Elytra basally densely reticulate, rather broad, with straight posterior margin; apex broadly rounded and slightly oblique, projecting well beyond the tip of the abdomen; intercalate vein sinuose, at the apex very close to vena radialis posterior. Wings moderately wide, elongate, venation normal.

Hind femur short, rather slender. Tibia slightly shorter, spurs normal. Arolium of tarsus small.

Male cercus strongly compressed, very broad basally, pointed and incurved apically; inner side concave, the outer convex. Male subgenital plate short, recurved, obtusely conical. Female subgenital plate elongate, excised apically; ovipositor normal; cercus flat, broad basally, pointed. Integument very smooth, shiny.

Coloration not soil-like; elytra neither fasciate nor spotted.

Phaeonotus pulcher sp. n. (fig. 2; Plate I, figs. 1, 2).

♂ (*type*). Antenna filiform, 22-segmented; ratio of antenna to head and pronotum together 11 : 6.

Frontal ridge with well-marked margins, slightly constricted below the ocellus and again at the apex. Fastigium of vertex oblong, with small raised margins and without a median carina. Foveolae indistinct, trapezoidal, very narrow and long. Face smooth and shiny, vertex also quite smooth, but not shiny.

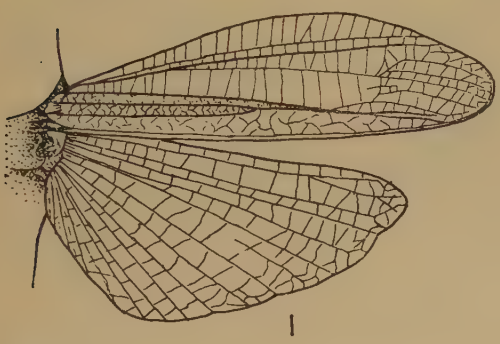


Fig. 1.—*Stauroderus scalaris demavendi* subsp. n. ♂ elytron and wing.

Fig. 2.—*Phaeonotus pulcher* gen. et sp. n. ♂ apex of abdomen, dorsal view.

First transverse sulcus slightly behind the middle of prozona; 2nd sulcus considerably broader, but not deeper than the 1st and 3rd; 3rd sulcus quite straight. Prozona very smooth; metazona with minute impressed black dots, not visible to the naked eye, and thence also appearing smooth. Lateral lobes concave in the middle, very smooth, shiny.

Pectus and abdomen smooth, shiny. Elytron slightly coriaceous in the basal half, apically transparent and shiny. Hind femur smooth. Hind tibia rounded and slightly broadened apically with 11 inner and 9 outer spines.

Anal segment emarginate behind, with 2 rounded projections. Supra-anal plate triangular with sinuate lateral edges and concave in the middle.

General coloration light buff above, ivory-white below. Face whitish with a light touch of grey below the antennae. Head above buff with a black median spot on the occiput, near the edge of pronotum. A deep black, shiny postocular stripe continued along the side of the pronotum, emitting a branch halfway down the lateral lobe; rest of pronotum light buff. Abdomen yellowish below, dirty bluish-green above. Anal field of elytra light buff, the rest black, fading apically. Wings light blue with infumate tips. Hind femora whitish outside, jet black inside, except a white band just before the knee; above with one blackish fascia near the knee. Knee blackish except the white lower lobe; darker inside. Hind tibia bluish, darkening apically and posteriorly with a narrow black sub-basal ring. Spines black tipped.

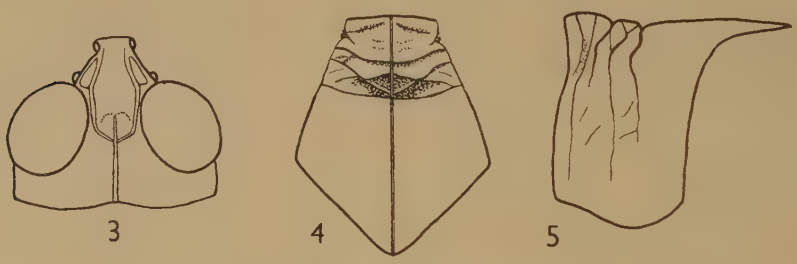
♀ (*paratype*). Ratio of antenna to head and pronotum 13 : 7·5. Supra-anal plate

obtusely triangular. Subgenital plate elongate, excised apically. Coloration essentially the same, but very slightly darker.

	♂ (mm.).	♀ (mm.).		♂ (mm.).	♀ (mm.).
Length of body . .	18·5	25	Head and pronotum .	6	7·5
Antenna . . .	11	13	Elytron . . .	21	24
			Hind femur . .	9·5	12

Iranian Baluchistan: Saravan, v.50 (*Mir-Salavatian*), 1 ♂ (type); 2 ♀ from Bampur and Sarbaz, v.50 (*Salavatian and Sor Kissian*).

According to Mr. Salavatian this species was found by him on *Dianthus* sp., and it would seem that it spends at least part of its life on vegetation; this may explain its peculiar coloration, which is unusual amongst Oedipodinae. The small tarsal arolium does not necessarily prove the contrary, since it is also small in some *Aiolopus* spp., which are predominantly phytophilus in their habits.



Figs. 3–5.—*Pseudoceles dirshi* sp. n.

Pseudoceles dirshi sp. n. (figs. 3, 4, 5).

The nearest relative of this species is *P. violaceous* (Moritz), from which it differs in the shape of fastigium of vertex and the pronotum, but most of all by its coloration and large size.

♂ (*type*). Frontal ridge slightly concave and constricted below the ocellus and narrowed at the apex. Fastigium of vertex elongate, concave, with sharp carinae; narrowing and open apically, broadly rounded and closed posteriorly. Occiput with a low carinula.

Pronotum constricted in prozona, broadened in metazona. Median carina sharp; in profile scarcely raised in prozona and feebly convex in metazona. Lateral margin of prozona between sulci gibbose; metazona twice as long as prozona, its lateral margins smooth and diverging; posterior angle right with acute apex. Anterior and lower margins of lateral lobes weakly sinuate.

Elytron slightly narrowing apically; ratio of length to width 5 : 18.

Hind femur relatively long, ratio of length to width 3 : 6. Hind knee with elongated upper lobe and weak incision.

Subgenital plate short, subconical, obtuse.

Coloration brownish; elytron without spots. Basal disc of wing purple with infumate fascia and basal ray; apex infumate.

Hind femur inside black with a white fascia in front of the knee; above with two

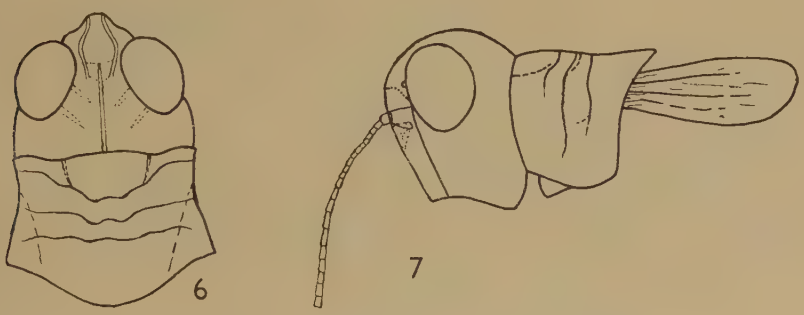
dark fasciae, the basal very faint. Hind tibia bluish with black knees and a white subbasal ring.

♀ (*paratype*). Lower valve of ovipositor with a large basal tooth on the outer side. Wings coloured as in male, but not infumate apically.

	♂ (mm.).	♀ (mm.).		♂ (mm.).	♀ (mm.).
Length of body . .	18	26	Elytron . . .	18	26
Pronotum . .	4	6	Hind femur . .	10·5	13

Fars : Siasakht, Gardaneh Bijan, 2500–3000 mts., 2 ♂ (including type), 2 ♀, 31.vii.49 (*Mirzayan*).

I have great pleasure in naming this fine species after Dr. V. M. Dirsh, who recently reinstated and revised the genus to which it belongs.



Figs. 6, 7.—*Paregnatius salavatiani* sp. n.

Paregnatius salavatiani sp. n. (figs. 6, 7).

Similar to *P. moritzi* Uvarov, 1933, but differing from it in shorter antennae, longer elytra and metazona of pronotum.

♀ (*type*). Antennae as long as head and pronotum together; visibly broadening apically; truncate; banded with blackish rings, which are narrower basally. Frontal ridge moderately sloping and convex in profile; seen from the front it is slightly sulcate, with margins parallel at first and diverging in the lower third. Fastigium of vertex sloping, concave and elongate; foveolae small, triangular, quite flat.

Pronotum short, with 3 transverse sulci. Metazona rugulose, broadly rounded, a little shorter than prozona. Median keel very low, indistinct between sulci. Lateral keels well defined in front of the 1st sulcus only. Lateral lobes slightly higher than long, smooth except along the posterior margin.

Elytra broadly oval, reaching the 2nd abdominal segment. Hind tibia rounded, with 8 outer and 11 inner spines.

Valvae of ovipositor very acute; lower pair dentate basally.

General coloration buff, mottled with minute brown spots; somewhat paler on the underside. Hind femur with 2 incomplete dark brown fasciae inside, continued above. Hind tibia dirty blue, fawn in the basal third; spines black.

Total length 12; antenna 4; pronotum 2·5; elytron 2·7; hind femur 6·5 mm.

Fars : Kahan, Dinar range, 25.vii.49, 1 ♀ (type) (*Mirzayan*); Komehr, Dinar range, 4.viii.49, 1 ♀ (paratype) (*Mirzayan*).

Subfamily Catantopinae.

Esfandiaria gen. n.

This genus is closely allied to *Acrostegastes* Karsh, and differs from it mainly in a less rounded head, larger and more closely spaced eyes, shape of the pronotum and relatively longer elytra.

♂. Rather large and robust, somewhat compressed laterally, on the whole more slender than *Acrostegastes*.

Antenna filiform, shorter than the head and pronotum. Head thick, distinctly more than half as long as wide; seen from above, projecting in front of the eyes, transverse. Front slightly oblique. Frontal ridge evenly expanded between the antennae; viewed in profile almost straight, with well-rounded apex of slightly more than 90°. Fastigium rounded, sloping forward. Eyes large, projecting laterally; interocular space about equal to the width of the eye.

Pronotum scarcely broadened laterally. Metazona shorter than prozona, with a rounded posterior angle of slightly less than 90°. Lateral keels completely absent, and the sides very broadly rounded and sloping. Median keel low; in profile slightly convex in metazona and straight in prozona. Lateral lobes with both lower angles broadly rounded; lower margin nearly straight and about as long as the metazona.

Prosternum armed with an almost vertical narrow, conical tubercle. The lobes of the mesosternum are a little broader than long and the interspace is quadrate. Metasternal lobes separated.

Abdomen with a low median dorsal ridge. Elytra lateral, strongly abbreviated, but overlapping, reaching the middle of the abdomen; the costal field is somewhat expanded; venation very dense. Wings a little shorter than elytra. Tympanum large, fairly exposed, with raised posterior edge. Hind femur rather heavy with only the upper carina slightly serrated. Hind tibia scarcely broadening apically, rounded, but grooved laterally on both sides; without an outer apical spine. Spines of normal length. Arolium shorter than half the claw. Supra-anal plate obtusely triangular. Lower pair of valvae of ovipositor slightly longer than the upper, with basal tooth rounded.

Esfandiaria obesa sp. n. (fig. 8).

♀ (*type*). Antenna not quite reaching the middle of pronotum. Frontal ridge in profile straight, with well-rounded apex of a little over 90°; viewed from the front it is flat, hardly raised, with low, sharp edges parallel in the lower half, evenly expanded between the antennae to nearly twice the original width and again narrowed towards the fastigium. Fastigium rounded, sloping forward, densely rugose and not carinated; separated from the occiput by a very broad shallow sulcus with a smooth shallow depression directly behind. The median carina of the vertex begins in this depression and continues along the vertex.

Pronotum rounded, its cross-section oval; surface, except at the lateral angle of the metazona, evenly rugose. Median keel low and thick, feebly convex in prozona, straight in metazona; interrupted by 3 well expressed sulci. Metazona clearly shorter than prozona. Lateral keels completely absent. Lateral lobes with broadly rounded lower angles, the anterior margin nearly straight and roughly parallel with the frontal ridge of the head. Episternum somewhate pointed, curving inwards. Mesonotum and metanotum laterally rugose, but dorsally smooth, as are the pectus and the abdomen.

Elytra reaching the 5th abdominal segment; broader in the middle; venation thick, dense and irregular; costal and anal fields expanded in the middle and narrowed apically. Hind femur with the upper carina lightly serrate and others smooth. Hind tibia with 11 outer and 10 inner spines.

General coloration greenish, without any distinct dark markings. Hind tibia uniformly

pale green, spines with only the extreme tips black. The type is somewhat discoloured, therefore a more detailed description would not be reliable.

Total length 35 ; antenna 8·5 ; pronotum 13·5 ; elytron 11·5 (long) × 8 (wide) ; hind femur 18·5 mm.

Fars : Yassudj, near Shiraz, 28.vii.49 (*Mirzayan*).

The genus is named after Dr. E. Esfandiari, head of Research Department of the Iranian Ministry of Agriculture, under whose auspices extensive investigations of flora and fauna of Iran are being organized.

This interesting genus is closely related to *Acrostegastes* Karsh, and belongs to the geographical group which Uvarov (1938, *Mem. Soc. Biogeogr.* **6** : 257) has called Lemurian and characterized as follows : "A remarkable group of arbusticolous genera found in Baluchistan, Southern Iran and the Red Sea area can be regarded as Lemurian in origin, owing to their taxonomic affinities.

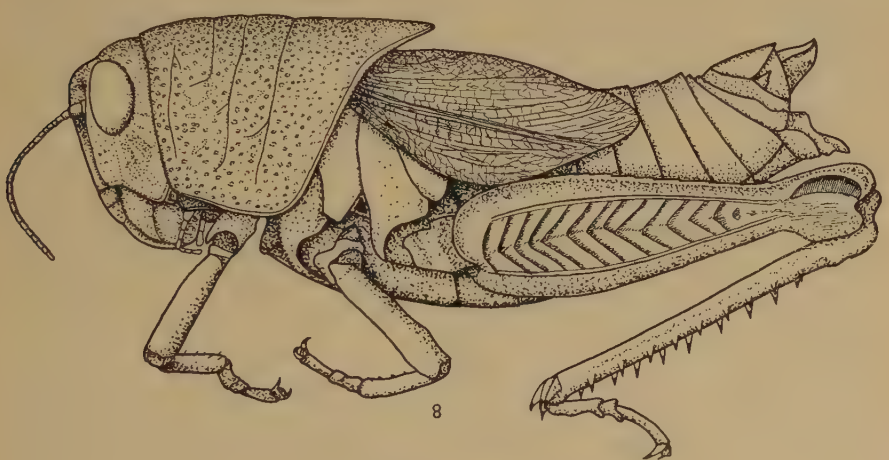


Fig. 8.—*Esfandiaria obesa* gen. et sp. n.

The group begins with *Acrostegastes* Karsh, including two species of brachypterous grasshoppers, one from the Somalilands, another from Zanzibar. The structure of the head and crested pronotum reveal its affinity to genera *Pelecinotus* and *Teratodes*, occurring in the dry forests of South India and Ceylon. The Iranian monotypic genus *Lyrotylus* Uvarov, 1923, represents a considerable modification of the same type, and *Kabulia* Ramme, 1929 (three species from Baluchistan and Afghanistan), continues the evolutionary series." The discovery of still another member of this group, *Esfandiaria*, provides an additional link between the faunas of South Iran, India and East Africa.

Wiltshirella gen. n.

A member of subfamily Catantopinae, belonging to the group with the apical external spine of hind tibia present, but not related to any known genus in that group.

Of medium size, in habitus somewhat squat, with thorax greatly expanded posteriorly, broader than high at is widest point.

♀. Antenna filiform, shorter than head and pronotum. Head thick, not projecting above pronotum. Frons very oblique. Frontal ridge raised, particularly between antennae, where it strongly projects forward; lowered towards clypeus. Apex of the head rounded, subacute. Fastigium of vertex oblong, convex in the middle, sloping forward, with thick but well-defined lateral carinae converging for and aft. Temporal foveolae absent. Occiput well rounded. Eyes large, projecting laterally; interocular space scarcely greater than the width of the frontal ridge at the ocellum.

Pronotum weakly convex in profile, greatly broadened laterally. Median keel very low and thick. Lateral keels very weak, slightly incurved and strongly diverging behind. Metanotum less than half as wide as pronotum; broadly emarginate behind. Lateral lobes longer than high with broadly rounded lower angles. Prosternal tubercle straight, short and broad, obtusely conical. Mesosternal lobes somewhat broader than long; their interspace transverse. Metasternal lobes well separated.

Abdomen with a low median keel. Tympanum small, flat, flush with the adjoining surface. Elytra lateral, exceedingly narrow, parallel sided, rounded apically. Hind femur moderately heavy, slightly flattened; other femora normal. Hind tibia rounded, feebly broadened apically with 9 outer and 9 inner spines, including the apical ones.

Supra-anal plate broadly triangular. Subgenital plate obtusely angular apically. Valvae of the ovispositor rather long and heavy, simple, with the lower pair somewhat longer than the upper and with a blunt basal tooth.

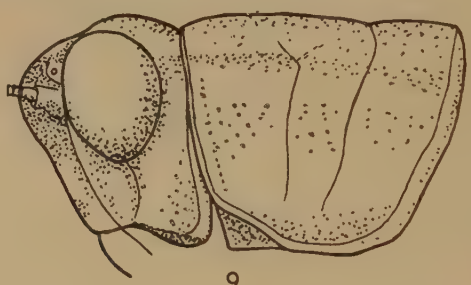


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Fig. 9.—*Wiltshirella fusiformis* gen. et sp. n.

Wiltshirella fusiformis sp. n. (fig. 9; Plate I, fig. 4).

♀ (*type*). Antenna reaching slightly beyond the middle of pronotum.

Frontal ridge with thick, well-raised margins, weakly diverging downwards, slightly constricted below the ocellum; strongly narrowed at the apex, where the margins meet at a point, and diverging again at the fastigium. Fastigium well defined, elongated, pear-shaped, with a low median carinula beginning in the narrowed part and running along the vertex, which projects above the fastigium.

Pronotum with two transverse sulci, the second interrupting the median keel. Lateral keels very low and weak, obsolete behind the posterior sulcus. Pronotum not quite covering the mesonotum.

With the exception of hind tibiae, middle and front legs, and the ovipositor, the insect is completely hairless and shiny. Head, pronotum, metanotum, the basal third of the abdomen and the upperside of hind femora densely punctured, but still preserving a relatively shiny appearance.

Elytra nearly five times as long as broad, rugose, reaching the posterior margin of tympanum, but not completely covering it.

Supra-anal plate obtusely triangular with a deep transverse sulcus and a shallow median sulcus deeper in basal half. Subgenital plate broadly angular.

General coloration shiny dark brown. Face with a blackish spot on the lower third of the frontal ridge. A postocular blackish band continues along the upper half of lateral

lobes of pronotum, becoming somewhat weaker in metazona; strongest just below the lateral carina. A chain of shiny black lateral spots runs along the sides of the abdomen, gradually narrowing apically, with another, much weaker and interrupted subdorsal one. The underside of the body is slightly paler than upperside. Hind femora outside very shiny light brown mottled with dark spots; on the inner side mostly black. Hind tibia light brownish with a dark bluish-black spot on the inside of the knee. Spines black tipped. Total length 33; antenna 7; pronotum 6; hind femur 13 mm.

Described from a single female from Sineh-Safid, alt. 6500 feet, near Shiraz, 10.iv.50 (*E. P. Wiltshire*).

The habitat is described by the collector as a sunny scree on shrub-covered slopes.

Dinaria gen. n.

Similar to the genus *Pezotettix*, but more closely related to *Paraconophyma* Uvarov, 1921. It differs from the first by the ovipositor, which is concealed by paraprocts (as in *Paraconophyma*), and from the second by its elongated head. It can further be distinguished from both these genera by the elongate, parallel-sided elytra.

Antenna shorter than head and pronotum. Frons very oblique in male, less so in female. Frontal ridge raised throughout, but somewhat lowered towards the clypeus; slightly concave with raised lateral margins, feebly divergent downwards but slightly constricted below the ocellum. Fastigium of vertex large, parabolic, deeply concave with raised margins, converging in front and extending behind the eyes; sometimes with a more or less distinct median carinula extended along the vertex. In profile vertex is broadly rounded, fastigium slopes forward, and the apex of the head presents a rounded, subacute angle. Temporal foveola very weak, about as broad as long, rugulose.

Pronotum with three transverse sulci. Metazona half the width of prozona and emarginate behind. Median keel low, slightly convex in profile. Lateral keels linear and converging in front of the first sulcus; behind it, more or less obliterated and divergent. Lateral lobes slightly longer than high, with rounded lower angles. Prosternal tubercle tongue-shaped, vertical, moderately long. Mesosternal lobes and their interspace quadrate in male, transverse in female. Metasternal lobes separated in female and almost joined in male.

Abdomen with a median keel running throughout. Tympanum large, fully open, with raised margins. Elytra rudimentary, lateral, oblong and more than twice as long as wide, reaching the first abdominal segment. Hind femur moderately heavy, others normal, or slightly thickened in the male. Hind tibiae rounded, slightly widened apically, with 10 outer and 9 inner spines, including the apical ones.

♂. Anal segment emarginate behind, more or less deeply excised. Supra-anal plate trapezoidal, pointed. Cercus small, pointed, shorter than supra-anal plate. Subgenital plate small, pointed.

♀. Anal segment emarginate behind. Supra-anal plate triangular, longer than broad, divided in half by a deep transverse sulcus. Valvae of ovipositor relatively short, almost concealed from above by well-developed paraprocts; the lower dentate basally. Subgenital plate excised apically.

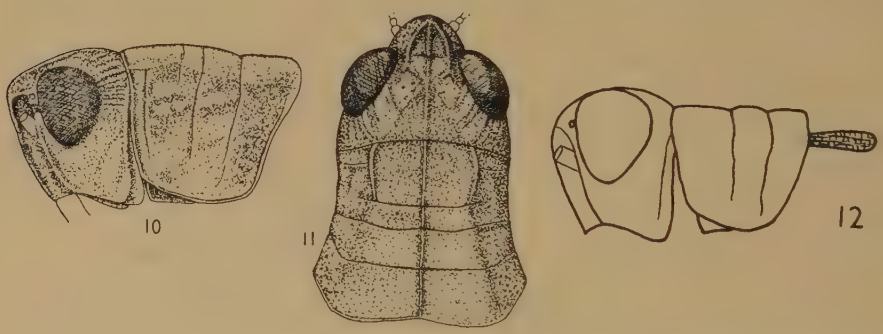
Dinaria mirzayani sp. n. (figs. 10, 11).

♀ (*type*). Antenna a little more than half as long as head and pronotum together. Frontal ridge viewed in profile uniformly convex, meeting the fastigium of vertex at a right, rounded angle. Fastigium slightly longer than broad, distinctly divided by a transverse sulcus; the anterior portion flat, inclined forward, the posterior part uniformly rising towards vertex. Vertex broadly rounded, with a more or less well-defined median

carina; sculptured, with a number of oblique postocular ridges (of which the largest is opposite the lateral carina of pronotum) and two broad, shallow depressions behind the fastigium. Temporal foveolae flat, almost square, with very faint margins. Interocular distance about twice the width of the frontal ridge.

Pronotum above uniformly rugose. Median keel low, linear, distinct throughout; interrupted by all three sulci. Lateral keels linear in front of the first sulcus, very obtuse and diverging behind. Lateral lobes with broadly rounded lower angles; with some shiny areas in prozona, rugose in metazona. Pronotum not covering mesonotum completely. Posterior emargination of pronotum broadly rounded. Pleurae smooth, but with small scattered impressed dots.

Abdomen uniformly rugose with sparse, short whitish hairs, more numerous than on head and pronotum. Elytra rugose above and below, edges nearly parallel; tip perfectly rounded, slightly projecting beyond the first abdominal segment. Hind femora somewhat hairy, with smooth carinae, rugose above, shiny inside and outside. Arolium moderately well developed. Supra-anal plate with a broad, shallow longitudinal sulcus in basal half.



Figs. 10–11.—*Dinaria mirzayani* gen. et sp. n. Fig. 12.—*Paraconophyma nana* sp. n.

General coloration light brown, paler on the underside. Face darker than the rest, due to numerous small dark spots. Keels of frontal ridge with dark interrupted lateral stripes. Rest of the head of the same colour, but somewhat darker in postocular region. Pronotum and abdomen unicolorous, but the latter with two very faint blackish lateral stripes. Hind femur also uniformly light brown, paler inside with two broad, faint dark bands. Hind tibia of the same brownish hue as the body.

♂ (*paratype*). Median carina of the vertex interrupted and obliterated in sections. Lateral pronotal carina well defined throughout. Mesonotum not completely covered by pronotum. Elytra projecting slightly beyond 1st abdominal segment. Frontal and median femora distinctly thickened.

Anal segment deeply excised, with two small, blunt teeth immediately adjoining the cleft. Supra-anal plate with two sharp teeth near the lateral angles. Subgenital plate acute with a deep basal depression.

General coloration somewhat darker than in the type with all marks sharper and more distinct. Vertex of the head with a dark median stripe widening posteriorly, continuing but less distinct on the pronotum. Lateral lobes of pronotum with a short, curved dark stripe and speckled with black dots. Lateral abdominal fasciae consist of numbers of dark, oblique stripes, narrowing and shortening posteriorly. Femoral stripes very distinct and black inside, but faint from above. Tibia light brown, speckled with dark dots, which leave a faint light sub-basal ring.

	♀ (type) (mm.).	♂ (paratype) (mm.).		♀ (type) (mm.).	♂ (paratype) (mm.).
Head and body	20	16	Pronotum .	4·5	3·5
Antenna .	4·5	—	Elytra . .	4·1	3·5
			Hind femur .	10·5	7·7

FARS: Dinar range, Kakan, 1 ♀ (type), 1 ♂, 23.vii.49 (*Mirzayan*); Komehr (25 miles away), 1 ♀ (paratype), 4.viii.49 (*Mirzayan*).

Paraconophyma nana sp. n. (fig. 12).

This is the first species of the genus *Paraconophyma* Uvarov, 1921, collected outside India and it can easily be distinguished from others by its small size, coloration and closely spaced eyes. In all these respects it resembles a *Conophyma*, but cannot be referred to that genus because of the presence of elytra.

♂ (*type*). Head short and thick, with large laterally prominent eyes. Frons oblique, frontal ridge raised, uniformly convex in profile, gradually lowered towards clypeus with straight, parallel margins. Fastigium narrow and long, deeply sulcate, with raised, nearly parallel margins; with the apex broadly rounded in profile. Temporal foveolae developed, but not margined.

Pronotum somewhat rugulose, about as broad as long. Median keel low but distinct, interrupted by the rear sulcus only. Lateral keels obtuse, developed and convergent in front of the first sulcus, obsolescent and divergent behind. Metazona half the length of prozona, obtusely emarginate behind. Lateral lobes rounded, as broad as high; shiny but with sparse impressed points, which are denser along the margins in metazona.

Prosternal tubercle short, conical. Metasternal lobes quadrate. Meso-and metanotum scarcely thicker than abdominal segments.

Abdomen sparsely punctured, with a median keel running throughout. Elytra lateral, minute, not reaching the tympanum. All femora short, thickened; hind femur with upper carina smooth. Hind tibia rounded, gradually thickened apically, with 9 inner and 9 outer spines, including the apical ones.

Anal segment emarginate behind with 2 rounded projections. Supra-anal plate trapezoidal with 1 apical median tooth, and 2 smaller ones along the lateral margins. Subgenital plate small, rounded. Cerci slightly compressed, acutely pointed.

General coloration straw-yellow. Face unicolorous, of the same shade as the body. A dark stripe commences at the fastigium, gradually widens posteriorly and continues on the pronotum; it forks at the hind sulcus and continues as two narrow stripes along the sides of the abdomen, gradually narrowing and ending at the 7th abdominal segment. Postocular dark band runs along the lateral lobe of pronotum below the lateral carina and forms the dorsal stripe just below the elytron. Rest of abdomen straw-yellow. Femora of same colour, with 2 indistinct dark bands on the upper side; inside not darkened. Hind tibia with a faint greenish tinge.

♀ (*paratype*). Anal segment emarginate behind but without projections. Supra-anal plate obtusely triangular, longer than its basal width, with a deep transverse sulcus. Valvae of ovipositor moderately long, lower pair slightly longer, with a basal tooth.

General coloration much darker than the male; the dark fascia indistinct and broken up. Hind femora with dark splotches on the inside and indistinct blackish marks on the upperside.

	♂ (type) (mm.).	♀ (paratype) (mm.).		♂ (type) (mm.).	♀ (paratype) (mm.).
Length of body	11	16	Elytra . .	1·0	1·1
Pronotum .	2·1	2·5	Hind femora .	6·0	7·4

Fars : Siasakht, Sitchani, 31.vii.49, 1 ♂, 1 ♀ (*Mirzayan*).

There are two other specimens (1 ♂, 1 ♀) in the collection sent by the Iranian Ministry of Agriculture, collected at Kahan, also in the Fars province (23.vii.49, Mirzayan), which differ from the above only in longer elytra covering the tympanum, but all other characters are essentially the same. More specimens will be required from this and adjoining localities to determine the stability of this character.

Sphodronotus grandis sp. n. (Plate I, fig. 3).

Differs from *S. cyclopterus* (Uvarov, 1933), the only other species of this genus, by well-developed facial keels as well as other minor structural differences of the head and pronotum, but mainly by the colour of the elytra, which are not speckled, and the bright cherry-red coloration of the inner side of hind femora and tibia.

♀ (*type*). Antenna a little shorter than head and pronotum. Front feebly oblique and convex in profile. Frontal ridge slightly convex, low and broad, scarcely constricted at the ocellum, narrowed apically ; obsolescent at the clypeus. Lateral facial keels low, but distinct. Fastigium of vertex elongate, widest in the middle, with raised margins.

Pronotum moderately convex in profile. Median keel uniformly low but distinct. Lateral keels completely absent. Prozona with three well-marked sulci and large indistinct punctures ; metazona distinctly shorter and densely punctured ; posterior angle broadly rounded. Lateral lobes with rounded lower angles, higher than broad.

Elytra extending beyond the hind knees ; slightly narrowed apically ; apex broadly rounded and somewhat oblique ; densely veined throughout, semi-transparent only near the apex. Wings very large, almost a quarter of a circle in shape ; first lobe well separated.

Hind femora short and broad, upper carina serrate. Tibia shorter with 7 external and 8 internal spines.

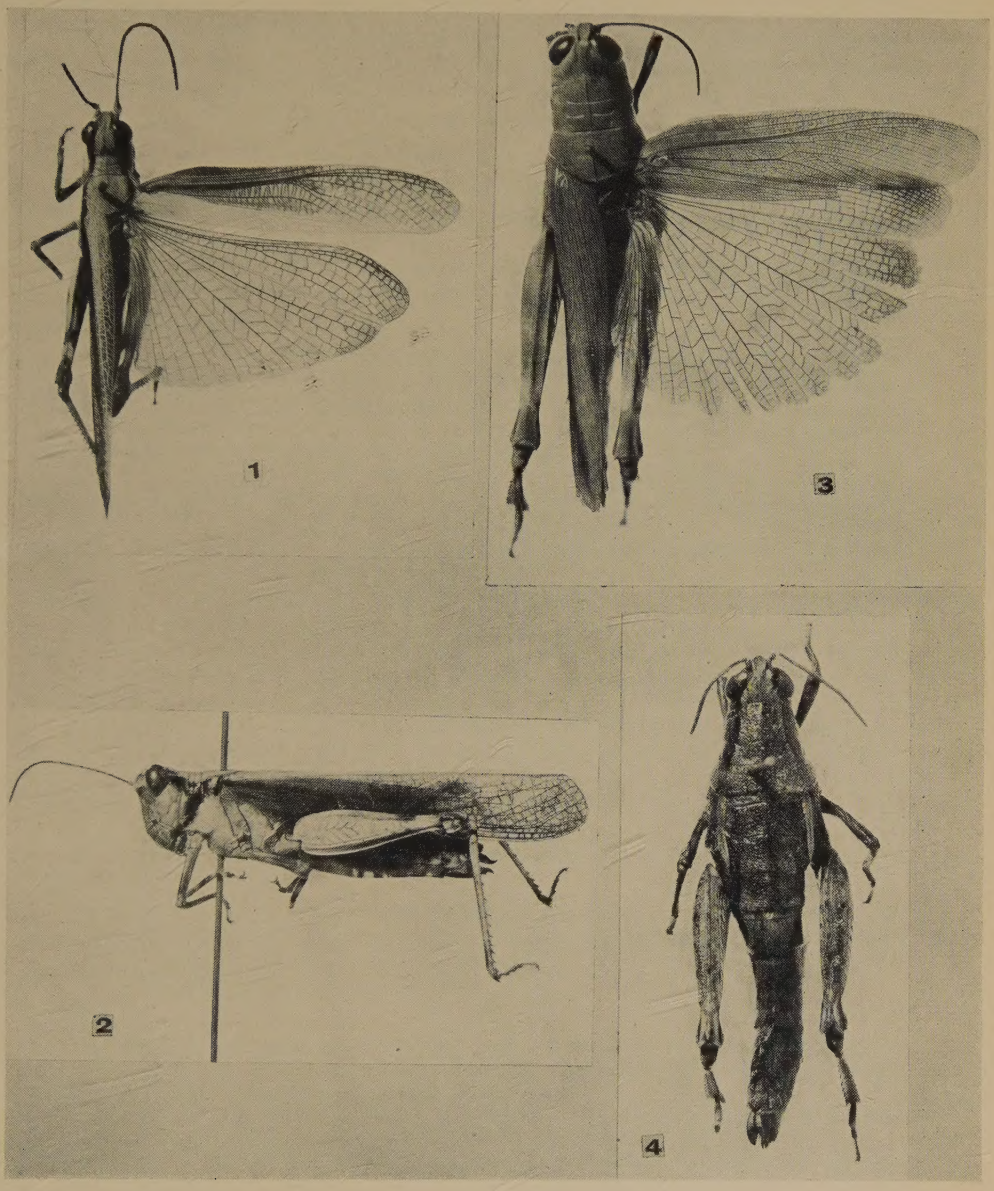
General coloration greyish-brown. Face slightly paler. Elytra without distinct spots or bars. Wings very slightly greenish, infumate along outer margin, fading away from the apex down. Hind femora uniformly greyish outside ; inside, including the lower knee-lobe, cherry-red deepening to black in the basal $\frac{2}{3}$; lower sulcus uniformly cherry-red ; knee with large blackish-brown semilunar spots outside and inside. Hind tibia cherry-red on the inner side, partly extending on to upper side, particularly apically ; rest brownish.

Total length 48 ; antenna 14 ; pronotum 10·5 ; elytra 35 ; width of wing 23 ; femur 24 mm.

Iranian Baluchistan : Sarovan, Bampusht, 1 ♀ (type), iv.50 (*Salavatian*).

South Iran : Kuh-i-Qinan, near Bandar Abbas, 11.ii.1944, 5 ♀ (*H. S. Darling*).

The paratypes are in a very poor condition and badly discoloured, but still sufficiently recognizable to refer them to this species.



New Iranian Acrididae.

FIG.

1.—*Phaeonotus pulcher* gen. et sp. n., ♂. × 2.
2.—*Phaeonotus pulcher* gen. et sp. n., ♀. × 2.
3.—*Sphodronotus grandis* sp. n., ♀. × 1·5.
4.—*Wiltshirella fusiformis* gen. et sp. n. × 2.

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1951

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„ December 5

1952

„ January 16 (Annual Meeting)

„ February 6

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